



## ACP Science and Technology Programme

AFS/2013/329-240

### WIKWIO

### Weed Identification and Knowledge in the Western Indian Ocean

### ANNEX VI INTERIM NARRATIVE REPORT

20<sup>th</sup> November 2014



Thomas Le Bourgeois - Cirad

Pascal Marnotte - Cirad

Nora Bakker - Cirad

Azaad Gaungoo - MCIA/MSIRI

Alain Paul Andrianaivo - FOFIFA

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Pierre Grard - IFP

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Ramesh B.R. - IFP



## ANNEX VI INTERIM NARRATIVE REPORT

- This report must be completed and signed by the Contact person.
- The information provided below must correspond to the financial information that appears in the financial report.
- Please complete the report using a typewriter or computer (*you can find this form at the following address <Specify>.*).
- Please expand the paragraphs as necessary.
- *Please refer to the Special Conditions of your grant contract and send one copy of the report to each address mentioned.*
- The Contracting Authority will reject any incomplete or badly completed reports.
- The answer to all questions must cover the reporting period as specified in point 1.6.

### 1. Description

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#### 1.1. Name of beneficiary of grant contract:

**Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD)** (International Cooperation Centre for Agronomic Research and Development), France

#### 1.2. Name and title of the Contact person:

**Dr. Thomas Le Bourgeois**, Weed scientist

#### 1.3. Name of partners in the Action:

**Institut Français de Pondichéry (IFP)** / French Institute of Pondicherry, India

**Mauritius Sugarcane Industry Research Institute (MCIA/MSIRI)**, Mauritius

**Centre National pour le Développement Rural (FOFIFA)**, Madagascar

**Centre National de Documentation et de Recherche Scientifique (CNDRS)**, Comoros

Two institutions are associated to the project:

**Association for strengthening Agricultural Research in Eastern and Central Africa (ASARECA)**, Uganda

**Centre for Coordination of Agricultural Research & Development for Southern Africa (CCARDESA)**, Botswana

#### 1.4. Title of the Action:

**WIKWIO: Weed Identification and Knowledge in the Western Indian Ocean**

#### 1.5. Contract number:

**AFS/2013/329-240**

1.6. Start date and end date of the reporting period:

**21<sup>st</sup> of November 2013 – 20<sup>th</sup> of November 2014**

1.7. Target country(ies) or region(s):

Countries of the Western part of the Indian Ocean such as Mauritius, Madagascar, Comoros, France (overseas departments in the area), Eastern and Southern African countries.

1.8. Final beneficiaries &/or target groups<sup>1</sup> (if different) (including numbers of women and men):

The target groups are all actors involved in weed research, weed management and weed science teaching. They are researchers, agronomists and technicians belonging to universities or national research institutions, agronomists from private sector, extension people from extension official services or NGOs. Agronomy and weed science students are also an important target group as the tools and information generated by Wikwio will be used to back up training and teaching.

To date, 85 users are registered on the participatory portal, including 23 women.

The final beneficiaries are the farmers of the area who should be able to enhance food and cash crop production through better weed control, and the populations of participating countries who should gain access to larger national crop production, enhancing their food security.

Furthermore, the project is conducted in conjunction with national agricultural research and development systems. The tools and information that will be made available on the Wikwio portal should help policy and institutional farming decision-makers with their choices. From the beginning of the project, several Ministers showed their interest in the project by contributing to the workshops (e.g., Hery Ainamalala Stelanony Directeur de Cabinet of the Minister of Agriculture of Madagascar and Christian Ralijaona, General Secretary of the Minister of Superior Education and Research of Madagascar) or by direct appreciation during personal meeting with national coordinators (e.g. the Ministry of National Education, Research, Art Culture and Sport in Comoros with our partner I. Yahaya).

1.9. Country(ies) in which the activities take place (if different from 1.7):

The Wikwio project concerns those countries of the Western Indian Ocean area. Initially, since the partners are from Mauritius, Madagascar and Comoros, these countries were given priority.

When the launching and the second workshop were prepared, in January 2014 in Mauritius and October 2014 in Madagascar respectively, weed scientists and agronomists engaged in weed management in several cropping systems were consulted. This resulted in a first group of weed scientists and actors of the weed study and the weed management from various countries in the region seeking to participate in the project. The countries concerned are: Botswana, Ethiopia, Kenya, Tanzania, South Africa, Swaziland, and Zimbabwe.

Due to the regional mandate of associate institutions such as CCARDESA for Southern African countries and ASARECA for Eastern African countries, the project is widely expanding its geographical activity, while retaining focus on partner countries.

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<sup>1</sup> “Target groups” are the groups/entities who will be directly positively affected by the project at the Project Purpose level, and “final beneficiaries” are those who will benefit from the project in the long term at the level of the society or sector at large.

The project is also benefiting from French overseas departments in the Indian Ocean such as La Réunion Island and Mayotte where Mr Marnotte and Dr Le Bourgeois, weed scientists from Cirad have been working for a long time and agronomists from Cirad are still working on weed management in sugar cane and orchards cropping systems.

## 2. Assessment of implementation of Action activities

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### 2.1. Executive summary of the Action

During the first year of the project the teams of the five partners have worked particularly well, and we can consider the goals set were largely achieved in terms of operational activities and results.

Immediately after the contract between Cirad and the Contracting authority signed, bilateral agreements between Cirad and the 4 partners (CNDRS, FOFIFA, IFP and MCIA/MSIRI) were prepared and signed from end of December 2013 to early February 2014. The first instalment was paid immediately by Cirad to partners to allow the start of work. Letters of collaboration was sent to associates (CCARDESA and ASARECA).

The launching workshop, organized in Mauritius by the end of January brought together 40 people, such as partners, local actors and regional invited persons to present the project and its objectives. A first version of the Wikwio participatory portal was presented as well as a first version of the IDAO identification tool.

From that date, partners started their work in the development and improvement of IT&C tools, data collection and data management, in order to be able to present a new updated release of the tools during the second technical workshop in Madagascar by the end of October 2014.

The technicians have been recruited more or less quickly according to partners (CNDRS by November 2013, FOFIFA and MSIRI by February 2014, and IFP by May and July 2014 respectively).

Finally, at the end of the first year of the project a new release of bilingual Fr/En participatory portal has been published which makes available a dataset and an IDAO identification tool for 345 weed species of the different cropping systems of the Western Indian Ocean area.

About 85 people from 12 countries of the area, involved in research, crop production, extension services and superior education are already members of the Wikwio portal benefiting from the information available on weeds and weed management and starting to share their knowledge through the whole area.

The project concepts and its innovative tools have already been presented at two international conferences and in several media publications.

Concerning the budget, a request for budget reallocation has been sent to the contracting authority to open a budget line 4.4 Internet of 3,000.00 € in order to pay Internet connection package for FOFIFA colleagues. This new expenditure is balanced by a reduction of the budget line 5.7 Costs of Wikwio seminars from initially  $4 \times 21,000 = 84,000.00$  € to  $4 \times 20,250 = 81,000$  €

By the end of the first year of activity the budget used is of 300,926.88 € which is about 30% of the total budget of the project. Some expenses for the actions of the first year are not mentioned in the financial report because they were not managed in time.

Certain budget lines show an important financial balance. They are:

1.1.1.2 (Cirad Weed scientist) because he join the project late,

1.1.1.6 (MSIRI Weed scientist) because he was very busy during the first year with his Phd to complete

Both of them will be able to spend more time to the project during the years two and three to compensate.

3.2.4 Mobile device: The mobile devices were not purchased during the year 1 because the IDAO applications to be used on it were not published. We decided to delay the purchase until the IDAO Mobile versions available during the year two.

One budget line shows an important deficit. It is:

2.1.1 Europe / Indian Ocean flights, because we considered for the year one only flights to Mauritius (Launching workshop) and we forget the ones for Madagascar (second workshop). But this will be compensated during the year 2.

Another aspect for the Europe/IO flights budget line is that the four flights France to India (during the whole project duration) were not counted in this budget line, but in the Intra Indian Ocean flights budget line.

## 2.2. Activities and results

### **Activity 1: Project launch, opening of the website, collaborative platform and online database**

Activity 1 is dedicated to the starting of the project, administratively by performing contracts with partners and technically by organizing the launching workshop to gather the partners and actors, opening the Website of the project and making the project tools usable (i.e. participatory platform and identification system).

It was also the time to purchase the equipment of teams (computers, video projectors).

Concerning the computers, since CNDRS and MSIRI had to recruit one technician and FOFIFA two technicians, and these institutions do not have any equipment available for technicians, it has been decided to buy one computer for each weeds scientists and one computer for each full time equivalent technician in order to facilitate their respective work but at the condition to respect the total amount of the budget line dedicated. Video projector has been purchased by FOFIFA (2 units, one for each subteam) and CNDRS but not yet by MSIRI. This should be done later.

By the end of the first year, all the tasks of Activity 1 have been completed at 95%. Books have still to be purchased to complete bibliography all along the project, and 1 video projector has to be bought.

The budget used to implement the activity 1 is about 99,959 € which represent 80 % of the estimated budget. The table 1 summarises the expenses of Activity 1

Table 1: Budget of Activity 1

<b>Item</b>	<b>Expected cost</b>	<b>Effective cost</b>
Salaries	52,253	49,640
Launching workshop	20,250	13,511
Equipment	23,250	14,756
Flights	10,000	8,759
Perdiems	15,400	10,680
Total	121,153	97,346

The global cost of the workshop was less expensive than expected because most of the costs were negotiated.

The four computers bought for Cirad team and P. Grard from IFP were less expensive than expected.

Perdiems were less than expected due to people who spent less than 7 days at Mauritius and the representative of ASARECA who couldn't attend the workshop.

The remaining funds will be used during the following period of the project, according to specific needs which will be evaluated with partners.

#### ***a) Signature of the contract and bilateral agreements (Cirad/partners)***

The contract between the applicant (Cirad) and the contracting authority was signed on 20 of October 2103.

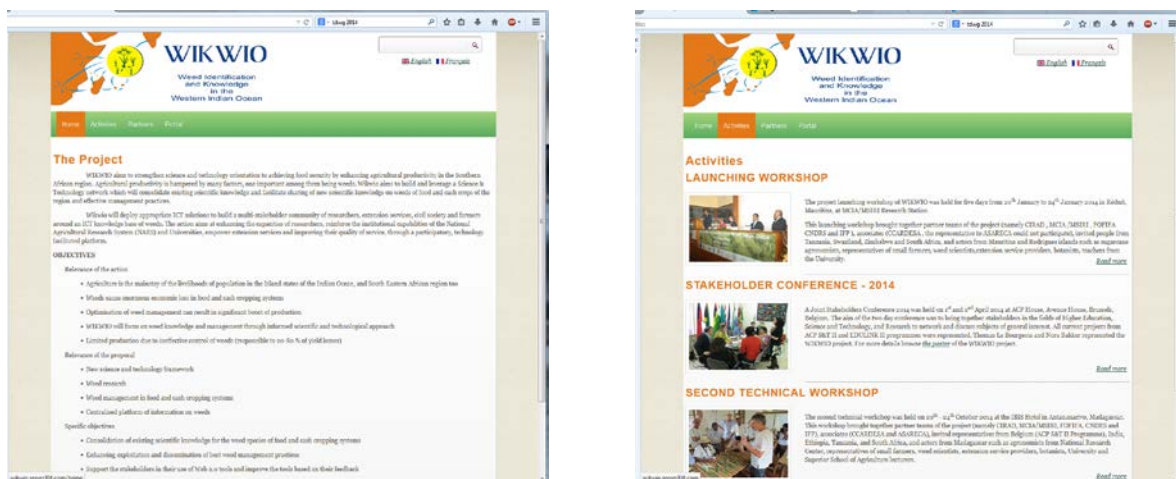
Immediately, bilateral agreements between Cirad and partners were elaborated and signed with FOFIFA on 18/12/2013, CNDRS on 19/12/2013, IFP on 10/01/2014 and MCIA/MSIRI on 06/02/2014 respectively.

Collaboration letters presenting the objectives of the project, contribution of associates and conditions of this collaboration were prepared and sent to associates institutions, namely CCARDESA and ASARECA on 05/12/2013.

First instalment by ACP S&T II Programme was received by Cirad on 12/12/2013, while a first instalment was paid by Cirad to FOFIFA on 19/12/2013, CNDRS on 26/12/2013, IFP on 06/02/2014 and MCIA/MSIRI on 06/02/2014 respectively, in order to allow them to start working.

### ***b) Opening of the project Web portal (Web 2.0 collaborative platform)***

On the technology front, as soon as the project was launched, a website (Fig.1) <http://www.wikwio.org/> was set up using the Drupal Content Management System, which will allow the objectives and up-to-date information could be disseminated. It currently has a home page describing the objectives of the project, a section on activities of the project, a section on partners of the project and a contacts page. These pages will be kept up-to-date to reflect the progress of the project. The site is now bilingual with all the contents available in both English and French languages.



***Fig. 1: Home and activities pages of the Wikwio Website.***

**The Wikwio participatory portal** is a Web-2.0 collaborative networking platform for both public and members of the Wikwio project (fig. 2). It is available at <http://portal.wikwio.org/>

It was launched in time for the launching workshop of the project at Mauritius in January 2104. The portal platform was set up on a server with Linux Ubuntu operating system with PostGRES, PostGIS, database; Apache tomcat application server, and rails framework. This portal is open, participatory, providing a S&T platform for farmers, extensionists, teachers and scientists to interact, collaborate to build and curate content under the Creative Commons license framework.

All applications including Geo-server were configured. The species pages module was configured conforming to the Species Profile standards with attribution and creative commons license structure. A Citizen Science module was configured to function as an observation module for citizen science, with upload of media with location and time and other parameters. A Groups module was configured where specific focus groups can be formed; and finally an identification module using IDAO system was included. The server was populated with data of weed species descriptions and images were populated into the species pages. An initial set of observations were loaded into the observation interface along with appropriate attribution and license. Extensive testing was done on the portal with serving data and adding new species and observations.

Once the initial server environment was commissioned, a demonstration of multilingual support for English and French was shown during the second technical workshop at Antananarivo, Madagascar. This has now been deployed and the portal is effectively bilingual from the interface to the content available.

The development of this portal is based on the India Biodiversity Portal. Any new functionality developed for a portal needs to be as generically as possible to be implementable in any other portal. For example, the internationalization of the Wikwio portal (Fr/En) will be used by the India Biodiversity Portal to manage several Indian languages, while a mobile application for collecting data developed by the IBP will be adapted for the Wikwio portal.

The Wikwio participatory networking portal allows to:

- Consult or contribute to species information spreadsheets;
- Supply weed observations (e.g. field trips, weed control practices, unidentified weeds);
- Supply maps (the geo-referenced layers can be superposed on a Google physical or OSM base layer map);
- Share information, working documents, check lists of species;
- Access the IDAO identification tool online;
- Manage working groups on specific topics such as cropping systems (sugar cane, orchard...) or general topics (weed science, communication);
- Create, animate and participate to online discussions.

Any page, document or photo can be subject to comments for/from members of the portal. These comments will include the basis for exchanges between the partners.

At the moment the portal contents

- Pages of information for 345 weed species more or less completed in French and English
- 2299 field observations
- 1 map
- 19 documents (protocols, guidelines, technical)
- 4 check lists corresponding to tables of weediness of the weed species according to the main cropping systems of each country
- An IDAO identification tool for the 345 weed species, available online

This portal is available for public consultation but participation and contribution in this portal requires registration. Registration is totally open but participation to groups or contribution to species pages is validated by the project coordinators to prevent actions from people with other intentions (e.g. people that are clearly not associated to agriculture, weed management or botany). By the end of the launching workshop, there were 33 members registered to the beta version of the portal.

An updated English version of the portal was made available by September 2014 while the bilingual French/English version was presented as a demo. It is now released and available. After the second technical workshop there were 85 members registered.



Fig. 2: Home page of the bilingual WIKWIO portal



**c) Bibliography / State of the art**

An inventory of books and papers concerning botanical flora, weed flora, weeds and the weed management in food and cash crops in tropical area in the laboratories of the partners was carried on.

To date, the inventory includes:

- 16 Botanical flora (paper and electronic)
- 29 field guides for weed recognition
- 6 multimedia products (CD-ROMs)
- 168 scientific papers and conference communications
- 45 student dissertations

**d) Organize the Launching workshop for partners and local stakeholders, in Réduit (Mauritius).**

The launching workshop of the project Wikwio was organized by the MCIA/MSIRI team in Mauritius, in collaboration with Cirad team in France.

**e) Launching workshop in Réduit (Mauritius)**

The Wikwio launching workshop was held at the MCIA/MSIRI research station in Réduit, Mauritius from 20 to 24 January 2014 (Fig. 3).

The full report of this workshop is provided in Appendix 1.

This launching workshop brought together partner teams of the project (namely CIRAD, MCIA/MSIRI, FOFIFA, CNDRS and IFP), associates (CCARDESA, the representative to ASARECA could not participate), invited people from Tanzania, Swaziland, Zimbabwe and South Africa, and actors from Mauritius and Rodrigues islands such as sugarcane agronomists, representatives of small farmers, weed scientists, extension service providers, botanists, University lecturers. Several personalities were invited to attend the Opening ceremony such as representatives from the Delegation of the European Union in the Republic of Mauritius, COI<sup>2</sup>, IUCN<sup>3</sup>, SADC<sup>4</sup>.



Some 80 people attended the opening ceremony while 40 people participated in the entire workshop.

**Fig.3: Opening ceremony of the Wikwio launching workshop (© A. Parmanum - MSIRI)**

The workshop was introduced by Honourable Satya Veyash Faugoo, Minister of Agro Industry and Food Security, Attorney General, Dr Salem Saumtally, Director of MSIRI and Dr. Thomas Le Bourgeois, project leader from CIRAD.

<sup>2</sup> COI : Commission de l'Océan Indien

<sup>3</sup> IUCN : International Union for Conservation of Nature

<sup>4</sup> SADC : South African Development Community



Various points were presented and discussed during the workshop:

- The WIKWIO project and its objectives
- The tools which will be used (e.g. Website, participatory portal, identification tool) during the project
- Weed species list and information to be managed, according to countries and cropping systems
- Training of participant in the use of tools and data management in the portal
- Collaboration opportunities
- Administrative and financial aspects of the project, for partners only

The list of weeds of 14 food and cash crops that will be studied in the framework of the Wikwio project was drawn up collectively and included 320 species. The species were selected based on their frequency of occurrence in the various countries and cropping systems or on their detrimental effects both at regional and local levels, or on the difficulty encountered by farmers in their control.

The first participatory tools have been implemented (Wikwio website, Web 2.0 participatory portal and IDAO identification tool) and actors trained in their use.

The synthesis of species information has been shared between weed scientists based on the species prevalence in the various countries and cropping systems.

From an administrative perspective, N. Bakker's mission gave all the partners a better perception and consideration of European Union expectations and operating rules. She also spent time with MSIRI's accountant for details on the administration of the project at MSIRI level. This administrative support approach was really appreciated and considered useful by partners.

### **Activity 2: Data collection and knowledge management on weeds**

The second activity aimed at collecting and managing extensive data on the weed species of food and cash crops in the region of the Wikwio Project. The expert on weed identification and control had to select the weed species that are the most important and the most widely encountered in the countries and had to introduce them in the database. The selected areas were covered by field trips to collect pictures and description of characters and character states, and also information of weed behaviour and control. The whole information was then aggregated (descriptions, photography, drawings, and scans) through the implementation of the IDAO application and the species pages of the portal. This activity mixed the computing part of the project with the agronomical part and was devoted to the publication of the identification and information tools on weeds.

By the end of the first year, the tasks of Activity 2 have been completed at about 28 %.

The budget used to implement the activity 2 is about 118,626 € which represent 25% of the estimated budget. The table 3 summarises the expenses of Activity 2

Table 3: Budget of Activity 2

<b>Item</b>	<b>Expected cost</b>	<b>Effective cost</b>
Salaries	255,423	70,556
Equipment	39,100	8,243
Running costs	33,200	5,310
Perdiems for field trips	27,700	5,221
Total	355,423	89,330

Photo equipment has been bought totally, while the purchase of mobile devices has been delayed to the second year to be done as soon as the mobile versions of IDAO will be published and the mobile application for collecting data available.

The translation of French species pages into English species pages has not yet started. This will be implemented during the second year.

***a) Consultation of existing herbaria and scanning specimen (Mauritius, Madagascar, Comoros and France):***

Several herbaria have been consulted during the first year:

- Herbarium of tropical weeds (UMR AMAP, Cirad, Montpellier, France)
- National Herbarium of Mauritius (Réduit, Mauritius)
- Herbarium of IFP (IFP, Pondicherry, India)
- National Herbarium of Comoros (University of Comoros, Moroni, Comoros)
- Herbarium of Service de Botanique du Parc Botanique et Zoologique Tsimbazaza (Antananarivo, Madagascar)

These consultations had different purposes. First of all it was to confirm the identification of specimen collected during field surveys. Secondly it was to take photos of the herbarium specimen to upload them in the portal and use them as illustrations of the species. Photos taken are under management before uploading in the portal.

A protocol has been written by MSIRI team for taking pictures of herbarium specimen. This protocol is available on the portal documents for consultation or download.

***b) Field trips:***

Along the first year, field trips were carried on in the three main countries of the project (Mauritius, Comoros, and Madagascar) and observations were also collected in La Reunion Island by members of the project. The reports of the field trips are presented in Appendix 2.

The table 4 summarises the field trips carried on by the different partner teams, and their results.

Table 4: Outline of the field trips during the first year of the project Wikwio

Date	People involved	Partner	Country	Place	Objectives	People met	Results
18-24/01/2014	Grard Le Bourgeois Gaungoo Seechurn Bakker Balu Ramesh Yahaya Randriamanpia Andrianaivo Workshop participants	Ifp, Cirad, Msiri, Fofifa, Cndrs others actors	Mauritius	several places	Launching workshop, taking photos of weeds and weed identification	Workshop participants Farmers Agronomists Estensionists	Presentation of Wikwio and tools Identification in the field 360 photos of 61 species
5-8/03/2014	Randriamampianina Andrianavalona Ramamonjhasina Rakotonandrasana			Middle West, Itasy, Bongolova	Training technicians, collecting specimen and photos	Regional Research Center of Fofifa Regional Direction of Rural Development Technicians Farmers	Presentation of Wikwio and tools Flyer distributed Collect of weed info. 420 photos of 40 species 29 herbarium specimen
19-21/03/2014	Randriamampianina Andrianavalona Ramamonjhasina Rakotonandrasana	Fofifa	Madagascar	East, RN2 axis	Training technicians, collecting specimen and photos	Regional Research Center of Fofifa Regional Direction of Rural Development Technicians Farmers	Presentation of Wikwio and tools Flyer distributed Collect of weed info. 420 photos of 70 species 38 herbarium specimen
2-6/04/2014	Randriamampianina Andrianavalona Ramamonjhasina Rakotonandrasana			Middle East, Alaotra, Mangoro	Collecting specimen and photos	Regional Research Center of Fofifa Regional Direction of Rural Development Technicians Farmers	Presentation of Wikwio and tools Flyer distributed Collect of weed info. 850 photos of 80 species 48 herbarium specimen

Date	People involved	Partner	Country	Place	Objectives	People met	Results
23-26/04/2014	Andrianaivo Randriamampianina Andrianavalona Ramamonjihasina Rakotonandrasana			Central area, Vakinakaratra	Collecting specimen and photos	Regional Research Center of Fofifa Regional Direction of Rural Development Technicians Farmers	Presentation of Wikwio and tools Flyer distributed Collect of weed info. 460 photos of 50 species 20 herbarium specimen
19-26/05/2014	Randriamampianina Andrianavalona Ramamonjihasina Rakotonandrasana			South-West, RN7 and RN9, Atsimo, Andrefana	Collecting specimen and photos	Regional Research Center of Fofifa Regional Direction of Rural Development Technicians Farmers	Presentation of Wikwio and tools Flyer distributed Collect of weed info. 520 photos of 70 species 54 herbarium specimen
14-20/07/2014	Randriamampianina Andrianavalona Ramamonjihasina Rakotonandrasana			North-West, RN4, RN6, Betsiboka, Boina, Sofia	Collecting specimen and photos	Regional Research Center of Fofifa Regional Direction of Rural Development Technicians Farmers	Presentation of Wikwio and tools Flyer distributed Collect of weed info. 510 photos of 78 species 49 herbarium specimen
20-24/10/2014	Grard Le Bourgeois Gaungoo Bakker Balu Ramesh Yahaya Randriamanpia Andrianaivo Andrianavalona Ramamonjihasina Workshop participants	Ifp, Cirad, Msiri, Fofifa, Cndrs others actors	Madagascar	Ivato farm	Collecting photos and plant identification	Ivato farm agronomist	Presentation of Wikwio and tools Identification 360 photos of 61 species
12/02/2014	Arouna Seechurn Azaad Gaungoo	Msiri	Mauritius	Beau-Champ	Collecting specimen and photos	Estate agronomist	More than 1000 photos of 147 species

Date	People involved	Partner	Country	Place	Objectives	People met	Results
10/04/2014				Beau-Champ	Collecting specimen and photos	Estate agronomist	750 photos of herbarium specimen of 40 species
30/04/2014				Belle-Vue	Collecting specimen and photos	Estate agronomist	
06/05/2014				Medine-Albion	Collecting specimen and photos	Estate agronomist	
23/05/2014				Rich En Eau	Collecting specimen and photos	Estate agronomist	
30/06/2014				Trianon	Collecting specimen and photos	Estate agronomist	
13/08/2014				Gris-Savanna-Curepipe	Collecting specimen and photos	Estate agronomist	
14/08/2014				Reduit-BeauSonge-Tamarin-Yemen	Collecting specimen and photos	Estate agronomist	
21/08/2014				La Nicoliere-Constance-Trou D'eau Douce-Grand Riviere Sud Est-Beau-Champ	Collecting specimen and photos	Estate agronomist	
03/09/2014				Rich-En Eau-Midlands-Forest Side- 16eme mille	Collecting specimen and photos	Estate agronomist	
04/09/2014				Rich En Eau-Mare Chicose, Union-Park-Belle Rive	Collecting specimen and photos	Estate agronomist	
05/09/2014				Belle-Vue, Roche Noire, Poudre D'or	Collecting specimen and photos	Estate agronomist	
11/09/2014				Pamplemousse, Bon Espoir, Beau Plan, Belle Vue	Collecting specimen and photos	Estate agronomist	

Date	People involved	Partner	Country	Place	Objectives	People met	Results
29/09/2014	Pierre Grad Arouna Seechurn Azaad Gaungoo	IFP MSIRI	Mauritius	Riambel-Roche Qui Pleure-Souillac-Baie du Cap-Chamarel- Case Noyale Beau-plan, Pamplemousse, Belle-Vue, Bon- Espoir, Plaine Des Papayes, La Nicoliere, Les Mariannes	Collecting specimen and photos	Estate agronomist	15 species documented
31/10/2014					Collecting specimen and photos	Estate agronomist	
06/11/2014				Reduit	Collecting specimen and photos		
31/10-01/11/2014				Réduit and different places	Collecting specimen and photos		
15-16/12/2013							
3-4/01/2014	Ibrahim Yahaya Faina Hadji Ramadhoini A.I.	CNDRS	Grande Comore	Sud Nord- Forêt de la Grille		Farmer	581 herbarium samples of 143 weed species 23 new species 581 photos
5-6/02/2014				Mvuni		Farmer	
13/02/2014				Centre-Est	Collecting specimen and photos	Farmer	
26-27/02/2014				Est Centre Ouest, Serehini		Farmer	
04/03/2014				Lac Hantsongoma		Farmer	
06/03/2014				Massif de la Grille		Botanists	
8-9/03/2014				Sud de Moroni		Farmer	
03/04/2014							
15-19/04/2014					Teaching 30 students Collecting specimen and photos	Prof and students	
24/04/2004				Anjouan Grande Comore	Bahani : Lac hantsongoma	Farmers	
07/05/2014					Plateau de Dibwani	Farmers	



Date	People involved	Partner	Country	Place	Objectives	People met	Results
20/05/2014				Mvuni		Farmers	
24/05/2014				Forêt de la Grille		Farmers	
29/05/2004				Iconi		Farmers	
04/06/2014				Moroni		Farmers	
02/07/2014				Mvuni, UDC		Farmers	
07/08/2014				Vouvouni/Mkazi		Farmers	
13/08/2014				Singani/Mdjoiezi		Farmers	
04/09/2014				Mkazi/Boboni		Farmers	
13-16/09/2014			Mohéli			Farmers, extensionists	

In Comoros, the CNDRS team managed to have a focal point of the project in each island of the republic. For example Mr Abdoukader Said Mahamed Souef, an ancient student in biology of the University of Comoros is the focal point of the project in Mohéli Island together with Mr Loutfi Mmadi Abdallah an extensionist agent in the island. Mr Abdoukader was invited to be trained at Moroni by CNDRS team and he participated to several field trips with the team, prior to collect weed observations in Mohéli. In Anjouan island, the focal point is Mr. Amelaid Houmadi working at the NGO ARAF (Association Régionale pour l'Aménagement et la gestion Forestière).

**c) *Botanical description texts:***

The first weed species list developed during the launching workshop contained 320 names. From the field trips, several new species considered, with agronomical impact, have been recorded. Thus by the end of the first year, the list of the project is about 345 species. This list is presented in Appendix 3. It will be progressively upgraded all along the project according to the information provided by partners or project members.

A compilation of botanical and agronomical description texts in French or in English, already published in previous field guides or media tools published by partners or already existing in partner databases was carried on. Then the missing species pages were prepared in French or in English according to partner best speaking language and reviewed by Ramesh from IFP for English texts and by P. Marnotte and T. Le Bourgeois from Cirad for French texts.

Once reviewed, the species texts were filled in the species pages of the Wikwio portal.

At the moment 282 species pages are completed in French, while 138 are completed in English.

**d) *Weed control methods:***

Weed behaviour, as well as control methods in the different agro-ecological conditions and cropping systems of the area, are being collected in the field with farmers and extensionists, and from compilation of scientific and grey literature.

**e) *Translation of the botanical texts:***

Most of the species texts currently in the database of the portal are in French. These texts will be progressively translated in English, and reviewed, then added in the English version.

**f) *Feeding the species database:***

A first set of species pages has been prepared and formatted in an Excel table then uploaded by bulk in the database of the portal through an automatic uploading procedure.

From now, with the new bilingual version of the portal, complement of information on a species pages can be added as soon as it has been reviewed and validated. In the next months, weed scientists of the project will be able to complete the species pages by themselves.

The species pages module has now been enhanced with the online edit feature like Wikipedia. So any member of the portal can send a comment or any complementary information or knowledge on any part of a species page (i.e. description, biology, ecology, weediness, control, etc.). By the way, this information is verified and validated by curators and then added in the species page.

**g) *Integration of IDAO and application development:***

A first online version of the IDAO identification system, for 199 weed species was made available for use on the Wikwio portal at the launching workshop. It was based on a previous IDAO tool published in French by the partners.

Following the conclusions of the launching workshop, a second version was developed including three new characters for identification, namely the life form, the life cycle and the agro-ecology. The tool was elaborated for the 345 weeds species of the accepted list. Direct links are now provided from the IDAO application to the respective species pages on the portal.

The new release of the IDAO Wikwio was presented during the second technical workshop held in Madagascar on October 2104 and tested by workshop participants.

The online version is available on the Wikwio portal.

Offline versions for computer and tablet or smartphone versions are still under development and should be available in the next months.

### **Activity 3: Capacity building**

The aim of the third activity is to strengthen capacity building of partners and national collaborators of the Indian Ocean Islands and SADC (Southern Africa Development Community).

By the end of the first year, the tasks of Activity 3 have been completed at about 25 %.

The budget used to implement the Activity 3 is about 70,364 €, which represent 31 % of the estimated budget. The table 5 summarises the expenses of Activity 3

Table 5: Budget of Activity 3

Item	Expected cost	Effective cost
Salaries	139,745	34,936
Travel	20,000	7,697
Workshops	40,500	17,272
Perdiems	29,183	10,459
Total	229,428	70,364

Travel costs and perdiems of representatives of ASARECA and CCARDESA who attended the second technical workshop are not included because these expenses were not reimbursed by Cirad before 20 of November 2104.

The global cost of the second technical workshop was less than expected due to good negotiations for all prices by organizers.

#### ***a) Organize the second workshop, dedicated to capacity building for partners and local stakeholders, in Antananarivo (Madagascar):***

The second technical workshop of the project Wikwio was organized by the FOFIFA team in Madagascar, in collaboration with Cirad team in France.

#### ***b) Second workshop at Antananarivo (Madagascar)***

The second technical workshop was held at the IBIS Hotel in Antananarivo, Madagascar from 20 to 24 October 2014 (Fig. 4).

The full report of this workshop is provided in Appendix 4.

This technical workshop brought together partner teams of the project (namely CIRAD, MCIA/MSIRI, FOFIFA, CNDRS and IFP), associates (CCARDESA, and ASARECA), invited people from Belgium (Secretariat of ACP ST II Programme), Ethiopia, India, Tanzania, and South Africa, and actors from Madagascar such as agronomists from National Research Center, representatives of small farmers, weed scientists, extension service providers, botanists, University and Superior School of Agriculture lecturers. Several personalities were invited to attend the Opening ceremony such as representatives from Cirad Regional Direction at Madagascar. People from the French Embassy and the Delegation of the European Union didn't come.

Some 80 people attended the opening ceremony while 40 people participated in the entire workshop.



Fig.3: Opening ceremony of the second workshop (© P. Marnotte - Cirad and P. Grard - IFP)

The workshop was introduced by Mr Hery Ainamalala Stelanony, Director of Cabinet of the Minister of Agriculture of Madagascar and Mr Christian Ralijaona, General Secretary of the Minister of Superior Education and Research of Madagascar, Dr Jacqueline Rakotoarisoa, Scientific Director of FOFIFA, Dr Patrice Autfray Representative of the Regional Director of CIRAD in Madagascar and Dr Thomas Le Bourgeois, project leader from CIRAD.

Various points were presented and discussed during the workshop:

- The WIKWIO project and its objectives;
- The tools of the project (e.g. participatory portal, identification tool);
- Weed species list and information managed, according to countries and cropping systems;
- Training of participants in the use of tools and data management in the portal;
- Collaboration opportunities;
- Administrative and financial aspects of the project, for partners only.

The list of weeds was updated to 345 species.

The bilingual (Fr/En) participatory Web 2.0 portal has been widely presented, as well as the IDAO identification tool. All participants were trained in their use.

From an administrative perspective, G. den Ouden from ACP ST II programme, presented the ACP ST programme and the European Union expectations and operating rules. N. Bakker's mission was focused in the analysis of financial reports of partners to prepare the annual financial report of the project. She also spent time with the accountant of FOFIFA for details on the administration of the project at FOFIFA level. This administrative support approach was really appreciated and considered useful by partners.

***c) Organize the third workshop, dedicated to capacity building for partners and local stakeholders, in Moroni (Grande Comore):***

During the meeting of project partners, it was decided that the third technical workshop of the project will be held at Moroni – Comoros by October 2015. I. Yahaya from CNDRS will be in charge of its organisation.

**d) Third workshop in Moroni (Grande Comore)**

In preparation, to be held by the end of the second year.

**e) Local training sessions**

Until now, only few training sessions have been organised locally, mainly during the launching and second technical workshops. This task will be mainly implemented along the second year and third of the project. In Comoros, CNDRS team organized several training sessions on weed identification with students, farmers, extensionists and focal point people.

The table 6 is outlining the training sessions organised by partners and/or members of the network.

Table 6: Outlines of the training sessions

Date	People involved	Partner	Country	Place	Target
22-23/01/2014	Balasubramanian	IFP	Mauritius	Réduit	40 participants of the launching workshop
13/02/2014	A. Gaungoo A. Seechurn	MSIRI	Mauritius	Riche Terre	Estate agronomists
13/03/2014	A. Gaungoo A. Seechurn	MSIRI	Mauritius	Beau Champ/Alteo LTD	Estate agronomists
15-19/04/2014	Ibrahim Yahaya Faina Hadji Ramadhoini A.I.	CNDRS	Anjouan		Prof and 30 students Sciences University
25/04/2014	A. Gaungoo A. Seechurn	MSIRI	Mauritius	Constance	Estate agronomists
18/06/2014	A. Gaungoo A. Seechurn	MSIRI	Mauritius	Réduit	15 students from Africa
21-23/10/2014	Balasubramanian T. Vattakaven	IFP	Madagascar	Antananarivo	40 participants of the second workshop
28/10/2014	H. Rafalimanana	ESSA	Madagascar	Antananarivo	18 Students ESSA agriculture 2 students EPSA Bevalala
25/11/2014	E. Lepinay	Cirad	Réunion	Saint Pierre	student and technician of orchard research team

**f) Strengthen the network through the use of the collaborative platform**

The Wikwio network has been firmly established with two major workshops in the region and many local training sessions. These engagements with the stakeholders have resulted in the registration of users on the collaborative Wikwio portal platform. At the moment 85 members are registered in the participatory portal with a sex ratio of 22 females and 63 males.

**g) Integrate feedback and suggestions for improvement**

Since the launch of the initial versions of the website, the collaborative portal and the IDAO identification tool in early January 2014, there has been a constant and continuous process of improving and updating the various technology components of the ICT tools. The team at CIRAD was in the forefront testing the portal platform rigorously on all its features and traced many bugs which were fixed by the development team based at IFP. This needs to remain an on-going process as the project expands in geography and user base who will provide feedback and suggestion on various tools of the project.

Feedback and suggestions for improvement are mainly providing from partners testing and using the tools. They send a message to the developing team and priority is established to implement the new suggestion. During each workshop, suggestions were taken into account by developers and updated in the new releases.

We can mention for example the add of three new characters (life form, cycle, agroecology) in the IDAO identification system, the internationalization of the of the portal platform with support for English and French catering to the needs of the target countries, a new frame of the website of the project and multiple details.

#### **Activity 4: Dissemination, reporting and internal communication**

The aim of the fourth activity is to manage efficient communication on and about the project at different scales: 1). Among project partners to facilitate the progress of the work, 2) With ACP S&T secretariat to present the results of the project, 3) to other stakeholders and countries concerned by tropical weed management to disseminate the weed information and attract more members to join the network and contribute in the sharing of information on weeds and weed management. Visibility actions and communication around the project will be organised with the global perspective of the action.

By the end of the first year, the tasks of Activity 4 have been completed at about 17 %.

The budget used to implement the Activity 4 is about 29,919 €, which represent 13 % of the estimated budget. The table 7 summarises the expenses of Activity 4

Table 7: Budget of Activity 4

<b>Item</b>	<b>Expected cost</b>	<b>Effective cost</b>
Salaries	118,033	20,066
Travel	19,600	2,285
Workshop & stakeholder meeting	30,250	1,810
Perdiems	30,762	2,142
Publication, visibility & audit	30,000	3,616
<b>Total</b>	<b>228,645</b>	<b>29,919</b>

The cost of the audit of the financial report of the first year is not included because it has been paid after the closing date of the year one.

#### ***a) Organize Online Review Meetings:***

Online review meetings are organized monthly between project partners to discuss on going work, the problems encountered and the prospects. Along the first year, 11 sessions occurred (Table 6). Each of them is synthesized in a short note.

Further technical and/or administrative meetings were organized at every opportunity to bring together two or more partners such as workshops, mission in India, mission in Mauritius. 4 meetings occurred along the first year (Table 8).



Table 8: Outlines of the online review meeting and others

Date	People involved	Partner	Country	Place	Event	Audience	Results
20-24/01/2014	Wikwio partners	Ifp, Cirad, Msiri, Fofifa, Cndrs	Mauritius	Réduit	Launching workshop	Wikwio partners	Administrative meeting
04/02/2014	Wikwio partners	Ifp, Cirad, Msiri, Fofifa, Cndrs			Online review meeting	Wikwio partners	Monthly meeting on the progress of the project
04/03/2014	Wikwio partners	Ifp, Cirad, Msiri, Fofifa, Cndrs			Online review meeting	Wikwio partners	Monthly meeting on the progress of the project
4-10/04/2014	Le Bourgeois Bakker	Cirad	India	Pondicherry	Technical workshop	Ifp team	Improvement of development tools Administrative meeting
06/05/2014	Wikwio partners	Ifp, Cirad, Msiri, Fofifa, Cndrs			Online review meeting	Wikwio partners	Monthly meeting on the progress of the project
03/06/2014	Wikwio partners	Ifp, Cirad, Msiri, Fofifa, Cndrs			Online review meeting	Wikwio partners	Monthly meeting on the progress of the project
01/07/2014	Wikwio partners	Ifp, Cirad, Msiri, Fofifa, Cndrs			Online review meeting	Wikwio partners	Monthly meeting on the progress of the project
12/08/2014	Wikwio partners	Ifp, Cirad, Msiri, Fofifa, Cndrs			Online review meeting	Wikwio partners	Monthly meeting on the progress of the project
20/08/2014	Wikwio partners	Ifp, Cirad, Msiri, Fofifa, Cndrs			Online review meeting	Wikwio partners	Species spreadsheet
28/08/2014	Wikwio partners	Ifp, Cirad, Msiri, Fofifa, Cndrs			Online review meeting	Wikwio partners	Portal and IDAO dev.
09/09/2014	Wikwio partners	Ifp, Cirad, Msiri, Fofifa, Cndrs			Online review meeting	Wikwio partners	Monthly meeting on the progress of the project

Date	People involved	Partner	Country	Place	Event	Audience	Results
07/10/2014	Wikwio partners	Ifp, Cirad, Msiri, Fofifa, Cndrs			Online review meeting	Wikwio partners	Monthly meeting on the progress of the project
20-24/10/2014	Wikwio partners	Ifp, Cirad, Msiri, Fofifa, Cndrs	Madagascar	Antananarivo	Second technical workshop	Wikwio partners ACP ST II delegate Msiri team National Herbarium of Mauritius	Administrative meeting
30/10-4/11/2014	Grard	Ifp	Mauritius	Réduit	Technical workshop		Photo management
04/11/2014	Wikwio partners	Ifp, Cirad, Msiri, Fofifa, Cndrs			Online review meeting	Wikwio partners	Monthly meeting on the progress of the project

**b) Dissemination sessions / Communication:**

Workshops such as the launching and the second technical workshop play an important role in the dissemination of the project Wikwio. Each time, lots of local actors was invited, but also agronomists and weed scientists from several countries and institutions in South-eastern Africa (CCARDESA, and ASARECA, Ethiopia, India, Tanzania, South Africa, Swaziland, and Zimbabwe). CCARDESA and ASERACA will organize, in the next months, regional training sessions where Wikwio partners will participate while collaborators from other countries will contribute to disseminate and present the Wikwio project in their countries. This aspect of the project is just starting and will be emphasized during the second year.

The project and its first results has been also presented at the stakeholder meeting of the Edulink, ACP S&T II programme and at two international scientific conferences (see table 7)

A communication plan has been written (Appendix 5)

Table 7: Outlines of the presentations of the project

Date	People involved	Partner	Country	Place	Event	Audience	Results
20-24/01/2014	Grard Le Bourgeois Gaungoo Bakker Balu Ramesh Yahaya Randriamanpia Andrianaivo Andrianavalona Ramamonjhasina	Ifp, Cirad, Msiri, Fofifa, Cndrs	Mauritius	Réduit	Launching workshop	National authorities Europe delegates COI delegates IUCN SADC delegate MCIA/MSIRI directors Partners Associates Invited weed scientists Local scientists Agronomists Extensionists Professors Botanists Farmers	Presentation of Wikwio People aware of the project Contacts for collaborations
1-2/04/2014	Le Bourgeois Bakker	Cirad	Belgium	Brussels	ACP STII Stakeholder meeting	EU authorities Project leaders ACP Edulink	Presentation of Wikwio People aware of the project Contacts for collaborations
18-23/05/2014	Le Bourgeois	Cirad	France	Montpellier	4th EWRS Int. Symp. on Weeds and Inv. Plants	International scientists land managers	Oral communication on Wikwio People aware of the project Contacts for collaborations
20-24/10/2014	Grard Le Bourgeois Gaungoo Bakker Balu Ramesh Yahaya Randriamanpia Andrianaivo Andrianavalona Ramamonjhasina	Ifp, Cirad, Msiri, Fofifa, Cndrs	Madagascar	Antananarivo	Second technical workshop	National authorities Cirad representative Fofifa directors Partners Associates Invited weed scientists Local scientists NGO's Extensionists Professors Botanists	Presentation of Wikwio People aware of the project Contacts for collaborations

Date	People involved	Partner	Country	Place	Event	Audience	Results
27-31/10/2014	Balasubramanian Ramesh	Ifp	Sweden	Jonkoping	TDWG 2014 Conf.	International scientists Botanists Computer experts	Oral communication on Wikwio and IDAO People aware of the project
12-15/11/2104	Andrianavalona	Fofifa	Madagascar	Toamasina, Barikadimy, Ivoloina, Foulpointe	40th birthday of FOFIFA	Local authorities Director of Research station Fofifa staff Students	Presentation of the project and tools People aware of the project and tools. Lots of questions

**c) Organize the final workshop in Antananarivo (Madagascar)**

To be held during the third year of the project

**d) Final workshop in Antananarivo (Madagascar)**

To be held by the end of the third year of the project

**e) Reporting to EC and publicizing results of project:**

Any workshop or mission is the subject of a report that is made available on the Web site and the portal of the project. It is also sent to the Secretariat of ACP ST II.

The present document contributes also to the reporting to EC.

The first results of the project were presented by oral communication at two international conferences, namely:

- the 4<sup>th</sup> EWRS International Symposium on Weeds and Invasive Plants (Montpellier, France 18-23 May 2014) (T. Le Bourgeois – Cirad)
- and the Taxonomical Data Working Group 2014 Conference (Jonkoping, Sweden 27-31 October 2014) (Balasubramanian – IFP)

Abstract of these two communications are presented in Appendix 11.

The project has been also publicized to ministries of the partner countries during workshops (Mauritius and Madagascar) or directly during meetings with Ministers (Comoros).

- In Mauritius the Ministry of Agro Industry and Food Security
- In Madagascar the Ministry of Superior Education and Research and the Ministry of agriculture
- In Comoros the Ministry of National Education, Research, Culture, Arts, and Sports and also the President of the Republic who is also a farmer interested in weed management.
- French Embassies in Comoros and Madagascar were also contacted.
- A Web page on the project is edited on the Web site of the French Embassy in Comoros at <http://www.ambafrance-km.org/Programme-WIKWIO-ACP-UE>
- In Madagascar, A.P. Andrianaivo will participate to the event “Rencontre avec un chercheur” organized by the Institut Français de Madagascar from the French Embassy, to present the project.

During the launching workshop or by direct meetings, several representatives of regional or international organizations involved in agricultural development or biodiversity conservation were invited to be informed of the project (COI, EPPO, IUCN, SADC, FAO).

**f) Visibility action and publication**

Different kinds of visibility actions and publications were carried on along the first year corresponding to most of the items presented in the communication plan of the project.

**f.1 Leaflets and posters**

Leaflets in English and French presenting the project have been printed in 2,500 ex (see appendix 6). These leaflets were distributed at any occasion or event where the project was presented, (i.e. workshops, conferences, training sessions, stakeholder meetings of the EU, etc.). A poster in English has been printed and presented during the stakeholder meeting and workshops (see appendix 7). The

poster will be translated in Malagasy, Shikomori and other local languages to be used in the different countries of the project for any presentation of the project.

### f.2 Web 2.0 portal and Web site

The Wikwio portal and the Web site of the project are contributing by themselves in the visibility of the project at all geographical scales (local, national, regional and international). They are the most important support of continual communication, by presenting the project its partners and funders, and offering the consultancy of data and information and also the opportunity for members to contribute or request for help. All the target groups with Internet access are concerned. A simple google search for the term 'wikwio' results in the whole first page result filled with our project related links. This establishes an early search engine lead and will heavily contribute to the visibility of the project in the long term.

See at:

<http://portal.wikwio.org>

<http://wikwio.org>

### f.3 Technical workshops

The launching workshop in Mauritius (January 2014) and the second technical workshop in Madagascar (October 2014) were opportunities for visibility and communication on the project and for building new collaborations.

Documents used during the workshops (schedule, invitation, banner etc.) included the logos of the European Union, ACP Group of States and the ACP S&T programme and those of partners (fig. 13).



Fig. 15: Banner of the launching workshop (© T. Le Bourgeois/Cirad)



Fig. 2: Banner of the second technical workshop (© M. Ramamonjhasina – FOFIFA)



Inviting local and regional actors were opportunities to present the project and its objectives, to demonstrate the use of the tools and to train people in their use. Furthermore, they were occasions to build new collaborations with other projects that could be linked to Wikwio:

- Weed inventory in orchards at La Réunion Island by Cirad team,
- Catalogue of vascular plants of Madagascar by MBG<sup>5</sup>

These were also opportunities to meet people to elaborate new proposals:

- SSR Botanical Garden of Pamplemousses is the oldest botanical garden in the Southern hemisphere. After several years of lack of maintenance, a new team is in charge of the rehabilitation of the garden and is preparing a strategic plan for the coming years. Discussions with Kersley Pynee (Botanist) and Poojanraj Khurun (Officer in charge) highlighted the interest they have to propose collaboration in the development of an identification system using the IDAO process for trees of the botanical garden. Such a tool would have both an interest for monitoring plants by the staff of the botanical garden, a tourist attraction for visitors and educational for students who regularly visit the garden. A proposal will be included in the strategic plan which will be presented to the Ministry of Environment of Mauritius.
- The National Herbarium of Mauritius is under the control of the Ministry of Agro Industry and Food Security but is still based at the MSIRI Research Station. During the visit of the Herbarium we discussed with Dr. Claudia Baider (Herbarium officer) the possibility to digitize the herbarium sheets of weed species present in the list of the Wikwio project. She also plans to digitize the entire herbarium but lacks modern photographic equipment for it. It has been proposed that the MSIRI team would share the digital camera acquired under the Wikwio Project with the Herbarium. Herbarium sheets of weeds prepared during the Wikwio will be stored in the National Herbarium and contribute to the collection.
- The International Union for Conservation of Nature (IUCN) as part of a European Commission (EuropeAid-ENRTP6) supported action titled 'Preparation and testing of a comprehensive model for preventing and managing the spread of invasive species on island ecosystems' is developing a networking portal for the islands of the Western Indian Ocean called the Western Indian Ocean - Invasive Species Practitioners Network Portal. Olivier Tyack (IUCN coordinator of the project) attended the Wikwio workshop and was interested in analyzing the opportunities to establish some links in between the two projects.
- FOFIFA, MBG, Tsimbazaza botanical garden and IFP to explore collaboration in the area of **Diversity and taxonomic lineages in the tree flora of the Western Ghats of India and the eastern humid zone of Madagascar**

#### **f.4 Media (Newspapers, Radio, TV, Netnews)**

People from national or regional Media have been invited at every technical workshop to cover the event and spread the information on national or regional Media. Press releases were distributed (Appendix 8) and interviews organized with coordinators and/or participants of the workshops.

Press release was also distributed to Netnews Media to inform on the project.

Here is the list of media publications. Full publications are detailed in Appendix 9

An insert in the Mauritian newspaper “LE DEFI QUOTIDIEN” was issued on January 21.

An insert in the Indian newspaper “THE HINDU” was issued on March 04.

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<sup>5</sup> MBG : Missouri Botanical Garden

An insert in The non profit press on August 27

<http://www.tnpp.org/2014/08/launch-of-wikwio-project.html>

Inserts in the Express de Madagascar, Orange Mada, La Gazette de la Grande Ile, and NEWSMADA les Actus de Madagascar was issued on October 21 and 23.

<http://www.orange.mg/actualite/fofifa-lutte-integree-contre-mauvaises-herbes>

<http://www.lexpressmada.com/blog/actualites/economie/agriculture-forte-intrusion-des-mauvaises-herbes-a-madagascar-19721>

<http://www.newsmada.com/index.php/economie/52467-agriculture--moins-dadventices-plus-de-rendement#.VFuLRmM0-tN>

<https://www.youtube.com/watch?v=nsB0yc606Xs>

A paper in SciDev.Net was issued on November 17.

<http://www.scidev.net/afrique-sub-saharienne/agriculture/actualites/les-chercheurs-en-guerre-contre-les-mauvaises-herbes-en-afrique.html>

#### **f.5 Institutional or Science societies newsletters and media**

Media, websites and Newsletters from partner institutions, Funders, Embassies, Weed science societies... have been used to communicate widely on the project objectives, tools and progress throughout the project. Here is the list of media publications. Full publications are detailed in Appendix 10.

Lettre AMAP 33 December 2013

Ambassade de France aux Comores February 2014

<http://www.ambafrance-km.org/Programme-WIKWIO-ACP-UE>

Lettre AMAP 34 March 2104

UICN Newsletter Inva-Ziles 1 March 2014

EPPO Information Service 2014-06

Intranet Cirad News on ACP STII projects

<http://intranet.cirad.fr/les-rubriques-du-portail/les-actualites/actus-2014>

UICN Newsletter Inva-Ziles 2 July-Aug 2014

#### **f.5 National and international conferences**

The project and its first results have been scientifically presented on oral communications at two international conferences

- the 4<sup>th</sup> EWRS International Symposium on Weeds and Invasive Plants (Montpellier, France 18-23 May 2014) (T. Le Bourgeois – Cirad)

- and the Taxonomical Data Working Group 2014 Conference (Jonkoping, Sweden 27-31 October 2014) (Balasubramanian – IFP)

Abstract of these two communications are presented in Appendix 11.

#### **f.6 Scientific journals**

Scientific papers on the project, its concept and its results have not yet been published in scientific journals.

#### **f.7 Media supports**

A Wikwio IDAO identification and information application on weeds has been published on the portal of the project for computer online use.

#### **f.7 Local and regional training sessions with professionals**

Local training sessions were implemented to present the portal and its tools and train people in its use (see activity 3.e).

#### **f.8 Teaching (Universities, Agronomical schools)**

The portal and its tools on information and identification were used to teach botany and plant identification to students in Mauritius, Comoros and Madagascar (see Activity 3.f). They also are already used by students from ESSA at Madagascar to manage their data on weeds.

#### **f.9 Members activities**

Members of the portal namely Prof. Halitiana Rafalimanana from ESSA Department of Agriculture in Madagascar are already using the portal Wikwio and the IDAO identification tool to teach weed science and weed identification to students in agronomy.

The FAO Weed Officer Dr. Gualbert Gbehounou and the Risk Analysis specialist Ms. Sarah Brunel are interested to collaborate with the project Wikwio for capacity development in weed management in Africa. We will develop the collaboration in the next months.

#### **f.10 Web-links with other local, national or international project Websites or databases**

Web links with other Websites or online databases to enhance the links and collaborations with other projects and facilitate communication are already under work with “The catalog of vascular plants of Madagascar” from MBG Madagascar.

### f.11 Promotional items

For each technical workshop, promotional items with logos of the project, of the partners, and of the funders were distributed to participants (i.e. caps, umbrellas, bags, shirts, etc.)



Fig. 16: Caps, bags and umbrellas of the project during the field trip in rice farm (© T. Le Bourgeois/Cirad, P. Grard/IFP)



Fig. 16: Hats, shirts and bags of the project during the field trip at Ivato farm (© N. Bakker Cirad)

### **2.3. Please list activities that were planned and that you were not able to implement, explaining the reasons for these.**

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Mobile devices such as smart phones or tablets were not purchased during the first year because it appeared more relevant to wait for the publication of the mobile applications on Appstore or Google play. This development was a little bit delayed due to the internalisation of the portal that took more time than expected but was considered a priority.

A first Beta version of the Wikwio IDAO identification system is available for use on iPad tablet but it still needs some improvement and update to be used through the new IOS version. An encapsulated version should be available on Appstore by the first part of the second year.

A first training session was expected to be implemented in South Africa in collaboration with CCARDESA by July 2014, but was delayed as CCARDESA was busy with expanding its project and also to await the maturity of the portal and IDAO tools. A new planning will be discussed early in the second year.

### **2.4. What is your assessment of the results of the Action so far?**

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My assessment of the results of the Action of the first year of the project is very positive.

The launching workshop could be organized by MSIRI very quickly, just two months, after the starting of the project and all partners were able to work with enthusiasm and efficacy once the bilateral contracts signed or some times before administrative contingencies finished.

For a long time we were not totally confident to be able to organize the second technical workshop at Madagascar by October 2014 because of social and political events in this country. Finally it was decided to go on and it really was a success.

Web tools development took more time than expected due to the internationalization of the portal which was a little bit difficult to implement. But both the portal and the IDAO identification system were useful for the second workshop and are now used by 85 members of the network.

The first year was dedicated to the implementation of the tools and the compilation of a first set of data and knowledge on weeds and weed management. This has been done successfully. Data is under management to be introduced in the database.

The second year will be dedicated to the improvement of the participatory tools, the completion of data and knowledge and the rise of dissemination and training activities.

Here after is the logical framework of the project implemented for the first year of the Action.

Activities	<i>Activities:</i>	<i>Means:</i>	<i>Action progress &amp; costs</i>	<i>Preconditions</i>
<b>Activity 1</b>	<i>Project launching processes, web portal for the action set-up with web 2.0 technologies and collaboration modalities for data and networking defined, survey of state-of-art in weed science in the region</i>	<i>20 months of work Computer &amp; laptops, Video projectors bought (not MSIRI) Conference room for launching workshop in Mauritius 2 Europe / IO flights 8 instead of 9 IO / IO flights 60 instead of 77 units of perdiems Bibliography not finished IFP server is used but a more efficient server is needed. (Cirad server can't be used because of security rules that can't be respected with external access)</i>	<i>Action completed at 95% Contracts signed Availability of project portal and website; Launching workshop report  <b>Total action cost: 99,959 €</b> Salaries: 49640 / 52,253 € Equipment: 14,756 / 23,250 € Workshop: 13,511 / 20,250 € Travel: 8,759 / 10,000 € Perdiem: 10,680 / 15,400 €</i>	<i>Adequate ICT infrastructure still need to be improved, basic ICT competences among partners are achieved and need more training for stakeholders</i>
<b>Activity 2</b>	<i>Collaborative compilation of existing knowledge and collection of new knowledge on weeds of food and cash cropping systems is ongoing; Publication of identification and information tools is available for PC for online use and beta version for tablet. Translation of species text will be carried on in the second year</i>	<i>50 months of work Photo equipment bought Mobile devices will be purchased later 108days of local perdiem for partners (field work) 73 days of perdiem for NARS (field work) MSIRI, FOFIFA, CNDRS facilities (Internet had to be budgeted for FOFIFA partners through a budget reallocation)</i>	<i>Action completed at 28 % Availability of knowledge base on weeds in Fr and En and identification system for PC  <b>Total action cost: 118,626 €</b> Salaries: 70,556 / 255,423 € Equipment: 8,243 / 39,100 € Vehicule cost: 2,579 / 10,800 € Local transportation: 591 / 2,400 € Translation: 14,000 € Perdiem partners: 3,872 /</i>	<i>Field trip preparation, cooperation with extension people and NARS, accessibility to the sites Translation skills with good knowledge in botany for technical translation</i>



Activities	Activities:	Means:	Action progress & costs	Preconditions
			16,000 € Perdiem NARS: 1,349 / 11,700 €	
<b>Activity 3</b>	Capacity building actions comprising of regional, national and local level workshops and training sessions; strengthen the network of stakeholders across the region	18 months of work Video projector (FOFIFA, CNDRS) Conference room for workshops in Madagascar 4 Europe / IO flights 8 IO / IO flights 63 days of perdiem (14 still to be paid)	Action completed at 31 % Report of second technical workshop; Table of training sessions; Feedback from partners on project portal <b>Total action cost: 70,364 €</b> Salaries: 34,936 / 139,745 € workshop: 17,272 / 42,000 € Travel: 7,697 / 20,000 € Perdiem: 10,459 / 29,183 €	Willingness from different State agencies from different countries of the region; Cooperation from regional outfits for South and East African region
<b>Activity 4</b>	Strategically organized Dissemination & Visibility actions for wider impact across the Indian Ocean and South East African region. Participation to the joint stakeholder meeting at Brussels	5 months of work 2 Europe / IO flights 14 days of perdiem IFP facilities,	Action completed at 17 % Communication Plan; Report of the mission at ACP Brussels and IFP Pondicherry; Press coverage reports; publicity materials on portal <b>Total action cost: 29,919 €</b> Salaries: 20,066 / 118,033 € workshop: 0 / 21,000 € Travel: 2,285 / 19,600 € Perdiem: 2,142 / 20,762 € Stakeholder meeting: 1,810 / 10,000 € Publication: 0 / 6,000 € Auditing cost: 0 / 12,000 € Visibility: 3,616 / 12,000 €	The knowledge database on weeds is under work Participation to 2 national or international conferences

The comparison from the logical framework, the narrative report and the financial report of the planned activities and results of the first year of the project to those achieved by the end of the year shows that:

Considering the budget use and the number of units purchased

Human resources:

- A deficit of  $42-39.90=2.10$  months of technical work due to a small excess of project leader activity and a small deficit of activity of Cirad weed manager who join the project late and the Msiri weed manager overbooked by his Phd thesis during the year 2014. They will both contribute more during the next two years
- A deficit of  $49-45.65 = 3.35$  months of administrative work due to the delay for the recruitment of the technician at Msiri and Fofifa and a small excess of activity of Cirad administrative staff (+0.65 month)

Flights and perdiems for international travels:

- An excess of 3 Europe/OI flights due to the fact that the flights for the second workshop were forgotten in the budget of the year 1.
- An excess of 3 OI/OI flights due to the fact that the flights for the second workshop were forgotten in the budget of the year 1 and compensated by the absence of the ASARECA people at the launching workshop and the flight of CCARDESA people taken in charge by CCARDESA for the second workshop and the flight of the ASARECA people for the second workshop not counted in this budget of the year 1 because of a delay to send in time the vouchers to cirads' accounting.
- A deficit of  $172-149=24$  days of perdiems due to an error of 14 days of perdiem for Comoros planned for the year 1 but in fact necessary for the workshop in Comoros in year 2 and the absence of the ASARECA people at the launching workshop and the flight of CCARDESA people taken in charge by CCARDESA for the second workshop and the flight of the ASARECA people for the second workshop not counted in this budget of the year 1, because of a delay in sending the vouchers to cirads' accounting.

Purchase of equipment:

- 13 computers were purchased instead of 8 but at a lower price than expected in order to equip both scientists and technician of Fofifa, Cndrs and Mcia/Msiri. The reminding budget of this line will be used to buy a other computer for IFP team during the year 2 for specific development on IOS applications.
- 8 digital camera were purchased instead of 11 to be able to replace some of them that could be broken during the project
- 3 video projectors were purchased (2 in Madagascar for the 2 teams of Fofifa). The one dedicated to Mcia/Msiri is still not purchased.
- Only one mobile device was purchased during the year 1 to work on the development of mobile applications. We decided to delay the purchase of mobile devices until both IOS and Android applications will be available during the year 2.

Field work

- A residual of 2,221 € in Vehicle costs
- A residual of 609 € in Local transportation
- An excess of  $108-65=43$  perdiem days for field work of local staff but a residual of 2,629 € in this budget line. Mcia/Msiri people do not get any perdiem when working in Mauritius, because there is no overnight work. Perdiem days at Fofifa and CNDRS are lower than in the project budget which allows to spend more time in the field.

- A deficit of  $140-73=67$  per diem days for NARS and a residual of 2,852 € in this budget line. These residuals will be used during the second year of the project.

#### Other costs

- Financial audit cost if the year 1 is not taken into account in the financial report of the year 1.
- The launching and the second workshops were organized during the year 1 using a global budget of 30,783 € instead of 42,000 planned. The unit cost of workshops has been reduced to 20,250 € and part of the residual of this budget line (3,000 €) has been used to create a new budget line for Internet connection for scientists from Fofifa.
- A residual of about 1,400 € for Visibility actions due to TV and press communication during workshop that didn't need to be paid and printing of flyers less expensive than expected.

Finally 78% of the budget forecasted for the year 1 of the project has been used. Most of the 22 % of residual budget will be used during the year 2 for activities carried on all along the project, the reallocation of the residual will be discussed among the partners during the second year.

Considering the actions carried on and the deliverables produced we evaluate that 90 % of activities planned during the year 1 were performed efficiently and 95% of the results expected were completed.

The complete list of deliverables produced by the project along the first year is presented in external Excel table annexed to this report. The synthesis of this table shows a set of 87 deliverables which can be grouped by types as follow.

The most important deliverables and OVI's of the project are

- The website, the participatory portal and the IDAO identification and information tool are all effective. Statistics on the portal use show 3,689 sessions by 1,505 users, who have consulted 18,618 pages. 59.1 % of the sessions are from returning users while 40.9% of the sessions are from new users.
- 1 main database containing 3 sets of data concerning 345 weed species which are: 2,470 observations recorded, 15,771 photos uploaded, 300 species pages in French and 140 species pages in English respectively. 1 database for 253 states of 32 morphological characters for the 345 weed species for the IDAO identification system.
- 4 herbarium collections containing several hundreds of specimens
- 7 jobs created for technicians
- A network of 85 members including 23 women
- 2 main workshops and training sessions for partners and collaborators, 7 presentations and training sessions, 2 technical missions
- 8 articles in newspapers, 3 presentations at TV news, 1 presentation at the radio, 6 articles in newsletters, 1 poster, 3 presentations at conferences, 10 power point files, 1 video, 2 pages in other web sites, 2 sets of promotional items
- 2 flyers highly distributed (Fr/En)
- 2 sets of 8 guidelines for weed management (French and English respectively), 6 protocols, 6 reports,
- 14 visio conf. meetings among partners

## 2.5. Updated action plan of the second year

Activity	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Implementing body
<b>2b</b> Field trips													MSIRI + FOFIFA + CNDRS
<b>2c</b> Botanical description texts													CIRAD + IFP + MSIRI + FOFIFA + CNDRS
<b>2d</b> Weed control methods													CIRAD + MSIRI + FOFIFA + CNDRS
<b>2e</b> Translation of texts													MSIRI
<b>2f</b> Feed the species database													CIRAD + IFP + MSIRI + FOFIFA + CNDRS
<b>2g</b> Integration IDAO & app. development													IFP
<b>3c</b> Organize third workshop													CNDRS
<b>3d</b> Third workshop Comoros													CIRAD + IFP + MSIRI + FOFIFA + CNDRS + SADC + NARS
<b>3e</b> Local training session													MSIRI + FOFIFA + CNDRS + NARS
<b>3f</b> Strengthen the network													CIRAD + IFP + MSIRI + FOFIFA + CNDRS + SADC + NARS
<b>3g</b> Integrate feedback													Mainly IFP CIRAD + MSIRI + FOFIFA + CNDRS
<b>4a</b> Online review meetings													CIRAD + IFP + MSIRI + FOFIFA + CNDRS
<b>4b</b> - Dissemination / communication sessions													Mainly IFP + MSIRI CIRAD + FOFIFA + CNDRS + SADC
<b>4e</b> Reporting to EC and publicizing results													Mainly CIRAD IFP + MSIRI + FOFIFA + CNDRS
<b>4f</b> Visibility action publication													CIRAD + IFP + CNDRS + FOFIFA + MSIRI

### 3. Partners and other Co-operation

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#### 3.1. How do you assess the relationship between the formal partners of this Action (i.e. those partners which have signed a partnership statement)? Please provide specific information for each partner organisation.

Relationship between the formal partners of this action is really excellent. All partners showed a great enthusiasm in working in the project receiving an excellent appreciation from their respective directors.

The two workshops and the monthly meetings by visio-conference allowed a very efficient collaboration and transparency of work.

Any question could be discussed during the monthly meetings or at any time along the year.

Recruitment of technicians occurred very quickly for CNDRS and FOFIFA while it was a little bit delayed for MSIRI and bit more delayed for IFP.

At MSIRI, the weed scientist, A. Gaungoo, in charge of the coordination in Mauritius Island could not spend all the duration expected for his work in the project because he was involved in the completion of his Phd thesis until December 2014. He will be able to spend more time in the project during the next two years. Fortunately, results from his study on vine weeds in sugarcane in Mauritius will represent an important contribution to the project for weed knowledge as well as weed management in sugarcane fields.

At Cirad level, the weed scientist P. Marnotte arrived only on September 2014, back to Montpellier after the end of his assignment at the French Embassy in Benin. He will spend more time to the project during the next two years. The project leader, T. Le Bourgeois spent a little bit more time than expected in leading this big project with many partners.

Most of the tasks and activities planned for the first year of the project were carried out successfully and effectively.

The only aspect which was causing some trouble was the organization of the financial audit by each partner by the end of the year before being able to consolidate the financial report and the financial audit at Cirad level. It was not possible for certain partners to respect the deadline for preparing and sending their activity report, financial report and audit report on time, which delayed the synthesis.

#### 3.2. How would you assess the relationship between your organisation and State authorities in the Action countries? How has this relationship affected the Action?

Relationship between the project organization and State authorities in the Action countries can be considered excellent. Both the launching workshop and the second technical workshop were introduced by Ministers or their representatives in Mauritius and Madagascar respectively, with an excellent appreciation of the project. For example, in Mauritius the Action was considered by Honourable Satya Veyash Faugoo, Minister of Agro Industry and Food Security, Attorney General, an important contribution to the governmental programme “Maurice Ile Durable” which is a vision that seeks to transform the environmental, economic and social landscape of Mauritius. This programme started in June 2013.

In Comoros, I. Yahaya, weed scientist of the CNDRS and local coordinator of the project was received by the Minister of National Education, Research, Culture, Arts, and Sports and also by the President of the Republic of Comoros who is also the owner of an Ylang ylang farm and interested in weed management.

### **3.3. Where applicable, describe your relationship with any other organisations involved in implementing the Action:**

- Associate(s) (if any)

CCARDESA and ASARECA are the two regional institutions associated to the project. Their representatives were invited to attend both the launching and the second technical workshop. A commitment letter has been sent to both of them. The Wikwio project has been included in their respective work plan and training sessions will be organized during regional events organized by CCARDESA and ASARECA during the second and the third year of the project.

- Sub-contractor(s) (if any)
- Final Beneficiaries and Target groups

Several Beneficiaries or Target groups such as weed scientists invited to participate to the workshops, professors or lecturer at the Universities or Agronomical schools, or trainers in agronomy are now members of the platform are benefiting of training supports for the project (power point presentations, portal, IDAO identification tool, species pages...) to carry on teaching on botany or weed science, plant identification and weed management. The workshop in Mauritius particularly had the participation of extension staff from farms. So the project has consciously engaged with the range of stakeholder's right from the inception of the project. This relationship, which has been fruitful mutually, will define the character of the project.

The first year was just the starting of this kind of activity but it will emphasize during the second and the third year of the project. Some of them (for example H. Nienaber in South Africa or F. Reda in Ethiopia) proposed to present the project and its first results during national conferences in agronomy or weed science and make people aware of this through News Letters of weed sciences societies.

- Other third parties involved (including other donors, other government agencies or local government units, NGOs, etc)

Several government agencies or NGOs were informed of the project and/or invited to attend the workshops, such as COI (Commission de l'Océan Indien), EPPO (European and Mediterranean Plant Protection Organization), IUCN (World Conservation Union), SADC (Southern African Development Community), FAO (Food and Agriculture Organization of the United Nations). Several inserts presenting the project were published in newsletters of these organizations (EPPO, IUCN) and collaborations are under discussions with FAO on capacity development for weed management in Africa.

### **3.4. Where applicable, outline any links and synergies you have developed with other actions.**

The main link has been developed with IBP (Indian Biodiversity Portal) team for participatory portal development. We are sharing capacities in computer development. Each of us is benefiting to the development of new applications or functionalities created under Creative Commons licence.

Web links with other Websites or online databases to enhance the links and collaborations with other projects and facilitate communication are already under work with "The catalog of vascular plants of Madagascar" from MBG Madagascar. Other opportunities of links are already under discussion.

### **3.5. If your organisation has received previous EU grants in view of strengthening the same target group, in how far has this Action been able to build upon/complement the previous one(s)? (List all previous relevant EU grants).**

CIRAD had earlier received a grant for the Afroweeds project AFS/2009/219015 (<http://www.afroweeds.org>) which focused on weeds in irrigated and lowland rice in the sub-Saharan African region to build an S&T network of stakeholders around weed management knowledge. The

current action Wikwio, is a natural extension and expansion of the Afroweeds initiative as, a) it concerns any cash and food cropping system b) it tries to build an S&T knowledge network in the Western Indian Ocean and the Southern African region, c) it brings together stakeholders around an enhanced, sophisticated and scalable web based collaborative platform with unique modules for spatial data, species and citizen science and new mobile applications to collect data in the field and upload automatically to the platform, d) the target group is extended to other cropping systems and areas.

#### 4. Visibility

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How is the visibility of the EU contribution being ensured in the Action?

The visibility of the EU contribution is ensured in the Action through the website and portal, all the documents (reports, posters, flyers, invitations, press release etc.), publications, presentations, promotional items, interviews were EU, the ACP Group State and the ACP ST program are acknowledged for funding the Action and all the Logo of EU, the ACP Group State and the ACP ST program are systematically displayed.

**The European Commission may wish to publicise the results of Actions. Do you have any objection to this report being published on the EuropeAid website? If so, please state your objections here.**

**There is no objection to this report being published on the EuropeAid website**

Name of the contact person for the Action: Dr. Thomas Le Bourgeois

Signature:



Location: Montpellier, France

Date report due: 5 January 2015

Date report sent: 12 February 2105